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THE TYPE SPECIES OF THE GENUS MICROCOCCUS

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Some statements regarding the characteristics of the type species of the Genus Micrococcus as made by Abd-el-Malek and Gibson (1) should be corrected before they cause confusion. These concern the species Micrococcus luteus (Schroeter) Cohn. In their description of this species as a gelatin-liquefying yellow organism Abd-el-Malek and Gibson (1) have followed the incorrect characterization by Lehmann and Neumann (2) and apparently have ignored Schroeter's original description and the nomenclatural rules governing such cases.

A review of the original literature shows that Schroeter's work, done in 1872, was not earlier than the period of pure cultures; indeed it was Schroeter that introduced the use of slices of sterile, cooked potato in this work. On exposing this solid culture medium to the air of the laboratory, he secured colonies, many of which must have been in pure culture. The yellow spherical bacteria obtained in this way were named Bacteridium luteus (sic). Moreover, Cohn working with Schroeter found that this organism grew in his culture solution in which ammonium tartrate was the only source of nitrogen. In these few characters the nature of this species is much more definitely established than Abd-el-Malek and Gibson apparently realized. During the next 17 years in which cultural methods developed rapidly Schroeter, still working with Cohn, continued to study this species on new culture media, especially gelatin, so that when he redescribed this species in 1886 (3) he added other

pertinent characters, the most important being that it does not liquefy gelatin.

While several authors who list this bacterial species add nothing pertinent to this description, it is noteworthy that Eisenberg (4) and the Franklands (5) followed Schroeter in describing the organism as a non-liquefying, yellow micrococcus. Eisenberg who evidently studied freshly isolated cultures notes some additional characters such as growth at room temperature.

With this species well established, Lehmann and Neumann bring the first discrepant note into the description of the species in stating that it liquefies gelatin. It is this incorrect statement that Abd-el-Malek and Gibson have accepted, as have others who have not looked up the original description of the species. The source of this error on the part of Lehmann and Neumann, continued into their latest edition (6), is not difficult to find, for these workers prepared their descriptions from their own studies of cultures, many obtained from the Kral Collection. Those of us that have used Kral cultures and have studied his catalogues know that he frequently sent out named cultures identified by some one other than the original author. Frequently these identifications would have been repudiated by the original investigator if he or she had been consulted. This certainly would have been the case with this species if Schroeter had been consulted. Lehmann and Neumann regard the species named by Schroeter Micrococcus luteus as identical with Micrococcus flavus liquefaciens Flügge 1886, and identify the non-liquefying yellow coccus with Micrococcus sulfureus Zimmerman.

Migula (7) describes Schroeter's Micrococcus luteus as non-gelatin-liquefying. Chester (8) follows Lehmann and Neumann in describing the species as liquefying gelatin (but he notes the Frankland's statement that it is non-liquefying). Because Bergey followed Chester in many of the descriptions given in the first edition of Bergey's Manual (8) this edition lists the species as a liquefier.

Meanwhile Winslow and Winslow (10) had published the first extensive monograph of the Coccaceae. They recognize

Micrococcus luteus as a non-liquefying, yellow chromogen, that does not reduce nitrates and grows in media containing ammoniacal nitrogen only. Unfortunately, in selecting Micrococcus flavus as type species for Micrococcus they do not observe the nomenclatural rule that the type species of a genus must be one of the species placed in the genus by the author when he first proposed the genus. Buchanan (11) (1917) corrects this and select Micrococcus luteus as the type species, a selection later accepted by Winslow et al (12) and by Bergey throughout the various later editions of Bergey's Manual.

Hucker (13) likewise accepts Micrococcus luteus as the type species and describes it as do Winslow and Winslow (10) in accord with Schroeter's original description. His work was completed about the time the first edition of the Manual appeared and he called Dr. Bergey's attention to the fact that early authors all agree in regarding Micrococcus luteus as a non-liquefying, non-nitrate reducing yellow coccus. The fourth essential character of utilization of ammoniacal nitrogen was not added until the third edition. For all who follow the accepted rules governing nomenclature, these must be the characters of the type species of the genus.

Summary. The type species of the genus Micrococcus is M. luteus (Schroeter) Cohn. It is a non-liquefying, non-nitrate reducing, yellow-pigmented coccus capable of utilizing ammoniacal nitrogen as sole nitrogen source.

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ADDENDUM

After the above was written, Dr. G. J. Hucker made his personal records of the cultures that he studied available to me. Two of his cultures were sent to the American Type Culture Collection and are now being distributed from the collection as No. 379 and No. 398. The first of these cultures was received from Kral under the label Micrococcus luteus, isolated from water in 1892. This culture was not regarded by Dr. Hucker as M. luteus. In fact, he identified it as a Sarcina and carried it in his collection under the number S46 to indicate this fact. It is a gelatin liquefier.

On consulting the 1900 Kral catalogue, I find their culture of M. luteus listed in a way that indicates that it came from Lehmann and Neumann. Presumably the culture sent to the Kral collection under this name was isolated and identified by Lehmann and Neumann during the period when they were studying cultures in preparation for the publication of the first edition of their Manual. This would explain their statement that the culture was a gelatin liquefier. On the other hand, ATCC culture 398 (carried in Dr. Hucker's collection as No. 426) was isolated from water and found to have characters that agreed with the characters given in Schroeter's original description of the organism. This culture apparently would make a good culture to select as the type culture for the type species of the genus Micrococcus.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

STATUS OF THE SPECIES NAME LEPTOSPIRA MITIS

Request for an Opinion
by the
Leptospira Subcommittee

5th June, 1952

Sir,

I have been directed by the Chairman of the Leptospira Subcommittee of the Nomenclature Committee to submit to the Judicial Commission certain matters regarding the nomenclature of the Leptospira commonly designated Leptospira mitis Johnson 1942, and to request the Commission to express an opinion as to the conclusions which should be drawn therefrom.

The facts are as follows:-

I. Johnson (Med. J. Austr., 1942, i, 431) described "The discovery of a fifth Australian type of leptospirosis", and he proposed the name "Leptospira mitis" for the causal organism.

Previously however Mino (Acta Conventus Tertii de Tropicis Morbis, 1938, i, 422) had used L. mitis to designate leptospires isolated in northern Italy. Gispen and Schüffner (Acta brev. neerl. Physiol., 1939, 9, 184) later identified these strains as L. bataviae, of which L. mitis Mino 1938 therefore became a synonym.

It would appear however that the specific epithet mitis was effectively published by Mino, in accordance with Rule 11 of the International Bacteriological Code of Nomenclature. If that is so, then L. mitis Johnson is a homonym, and is an "illegitimate" epithet (Rule 24) and must be rejected (Rule 24 (4)).

At a still earlier date Castellani and Chalmers (Manual of Tropical Medicine, 3rd Ed., 1919, London: Baillière, Tindall and Cox, p. 451) used mitis as a specific epithet to designate a Spiroschaudinnia found "in the centrifuged urine of certain cases of camp jaundice of mild type".

They included the causal organism of Weil's disease (Leptospira icterohaemorrhagiae) in this genus, and of S. mitis they say that it (S. mitis) "is thicker than S. icterohaemorrhagiae, and has larger and better defined waves. Of doubtful pathogenicity".

The information in the last paragraph has been included for the sake of completeness, but it may have no bearing on the question whether the name L. mitis Johnson should be rejected.

2. If the Judicial Commission decides that L. mitis Johnson should be rejected, their opinion is requested on a second matter concerned with the nomenclature of this species.

Savino and Rennella (Día Méd., 1944, 16, 1295) isolated from pigs and man in Argentina strains of leptospires which they believed to constitute a new species, and which they proposed to name Leptospira hyos. Babudieri (Boll. Soc. ital. Biol. sper., 1951, 27, 104) however found L. hyos to be identical serologically with L. mitis Johnson. This identification has been confirmed by Dr. C. Borg-Petersen, Statens Seruminstitut, Copenhagen, who has made his results available to the members of the Leptospira Subcommittee, although they have not yet been published.

It appears from Rule 26 that hyos therefore becomes the "oldest legitimate epithet" for this species, and that L. mitis Johnson 1942 becomes a synonym of L. hyos Savino and Rennella 1944.

The Leptospira Subcommittee would advocate the rejection of L. mitis Johnson for practical reasons also, as a means of preventing the continuance of errors in designating species. One such mistake occurs in Textbook of Bacteriology (Eleventh Edition of Muir and Ritchie's "Manual") by C. H. Browning and T. J. Mackie, 1949. On Page 509 these authors state that L. mitis (bataviae) produces "a 'seven-day fever' type of illness, rarely accompanied by jaundice or fatal, among dairy workers in Queensland".

The context of course makes it clear that it is in fact the Australian species, L. mitis Johnson, to which reference is being made.

The opinion of the Judicial Commission is thus sought on two questions regarding the nomenclature of the species at present designated L. mitis Johnson and L. hyos Savino and Rennella.

(1) Should the epithet mitis be rejected on the grounds that it is a homonym?
(2) If it should be so rejected, is hyos the oldest legitimate epithet, and should the species be designated L. hyos Savino and Rennella 1944, and L. mitis Johnson 1942 be considered a synonym?

I am, Sir,

Yours faithfully,

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Secretary, Leptospira Subcommittee

Dr. S. T. Cowan,
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International Committee on Bacterial Nomenclature,
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CONSERVATION OF THE GENERIC NAME BACTERIUM AND THE FAMILY NAME BACTERIACEAE

Comments of the Enterobacteriaceae Subcommittee, British Advisory Bacteriological Nomenclature Committee

Joan Taylor
Chairman, British Enterobacteriaceae Subcommittee

Comment on Dr. Borman's Letter

In his criticism of Opinion No. 4 of the Judicial Commission of the International Committee on Bacteriological Nomenclature, Dr. Borman (1) seems to have overlooked that the whole problem was centered on one species, variously known as Bacterium coli, Escherichia coli, Colobactrum coli, etc. The introduction into his argument of generic names such as Serratia, Klebsiella, Proteus and Pseudomonas, names that are not normally coupled with the specific epithet coli, seems to be irrelevant, and to distract attention from the focal point, which is the question "what generic name for this species is most generally acceptable to all bacteriologists, and which will cause least confusion in the future?"

It seems to us that the choice of generic name is immaterial so long as it is closely associated with the species, and, by combination of species, is not likely to be changed. Our aim, above all, is to seek international agreement on a permanent name for the genus which is centred around the organism named Bacterium coli commune by Escherich in 1885.

Until 1918, when Castellani and Chalmers introduced the generic name Escherichia, Bacterium (or Bacillus) coli was the only name commonly used for this organism. Escherichia coli was popularized by its adoption by Dr. Bergey in his Manual, but it is our belief that outside the U. S. A. it is little used by bacteriologists. It appears frequently in papers by biochemists because many of their journals insist on the Manual terminology.

The Bacteriological Code aims at the fixity of names (Prin-

ciple 1) and to avoid disadvantageous changes by a strict application of the rules, it allows that exceptions may be made (Provision 2). However, Note 3 to Provision 2 states that:

> "A conserved name is conserved against all other names for the group, whether these are cited in the corresponding list of rejected names or not, so long as the group concerned is not united with another group bearing a legitimate name. In the event of union or reunion with another group, the earlier of the two competing names is adopted in accordance with Rules 19, 20, and 21."

If there is to be any permanence to the combination Bacterium coli, it will be necessary to have a ruling that Opinion No. 4 should be made an exception to Note 3 to Provision 2.

The vulgarisation of the generic name Bacterium is analogous to a similar use of Bacillus. Since 1936, when the Nomenclature Committee conserved Bacillus as a generic name, greater respect has been given to that name, and, with this example in mind, we hope that in future the use of Bacterium will be restricted to the generic sense.

Dr. Borman has requested that the International Committee on Bacteriological Nomenclature should reject Opinion No. 4 of the Judicial Commission: We request that the Committee should approve the Opinion, and, to uphold the aims of the Bacteriological code, should state categorically that Opinion No. 4 shall be an exception to Note 3 to Provision 2.

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INDOLBILDUNG BEI BAKTERIEN*

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Nach den Angaben in der bakteriologischen Literatur könnte man annehmen, dass die Fähigkeit der Bakterien zur Indolbildung über alle Genera verstreut wäre. Dies trifft aber nicht zu. Nach den Feststellungen von Frieber (1) müssen folgende 5 Bedingungen von den Indolbildnern erfüllt sein:

1. Aerobes Wachstum
2. Sporenfreiheit
3. Nichtfärbbarkeit nach Gram
4. Säuerung von Glukose
5. Nitratreduktion.

Die Indolbildung ist demnach ausgeschlossen bei:

Anaerobiern, Sporenbildnern, grampositiven Arten, Glukose nicht säuernden und Nitrat nicht reduzierenden Bakterienarten.

Ungünstig für die Indolbildungsfähigkeit der Zelle sind:

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*Editorial Note. Dr. Frieber challenges the accuracy of ascription of indol production to species of bacteria which do not have the five physiological characteristics presented in this note. He lists 112 species of bacteria included in the 6th. edition of Bergey's Manual (1948) as probably incorrectly described as indol producers. Of these, 42 are included in the genus Pseudomonas, 8 in Xanthomonas, 1 in Vibrio, 1 in Agrobacterium, 2 in Micrococcus, 2 in Sarcina, 1 in Neisseria, 1 in Veillonella, 2 in Corynebacterium, 1 in Flavobacterium, 8 in Erwinia, 1 in Shigella, 1 in Actinobacillus, 10 in Bacteroides, 1 in Spherophorus, 2 in Fusobacterium, 4 in Bacterium, 1 in Achromobacter 4 in Cellulomonas, 20 in Clostridium. A statistical and critical study of correlation of indol production and other characters would be of considerable taxonomic significance.

Kapselbildung, Schleim- und Schleimwallbildung, Farbstoffproduktion und Säurefestigkeit.

Ohne Einfluss auf die Eigenschaft sind:
Begeisselung, Proteolyse, Haemolyse, Katalasebildung, Bildung von Acetyl-Methyl-Carbinol (positiv Voges - Proskauer - Reaktion), Harnstoffspaltung, Schwefelwasserstoffbildung.

Die Bedingung, dass die Bakterienzelle die Fähigkeit haben muss, aus Glukose Säure zu bilden, darf nicht missverstanden werden. Sie bedeutet nicht, dass die Bakterien zur Betätigung ihrer indolbildenden Eigenschaft neben Tryptophan auch Glukose im Nährboden (Nährlösung) vorfinden müssten, aus der sie Säure bilden können.

Im Gegenteil: Die Anwesenheit irgendeines von dem Bakterienstamm unter Säurebildung spaltbaren Kohlenhydrats ist unzweckmässig, weil in saurem Milieu die Indoltryptophanase gehemmt wird.

Die zahlreichen, nach unserer Ansicht nicht zutreffenden Angaben über positive Indolbildung haben ihre Ursache entweder

1. in der Verwendung unreiner, nicht einwandfrei bestimmter Bakterienstämme (besonders in der ersten Zeit der bakteriologischen Aera, etwa vor 1900)

oder 2. in der Wahl einer ungeeigneten, nicht spezifischen Nachweisreaktion (z. B. der Nitrose-Reaktion nach Salkowski) oder in unzweckmässiger Ausführung der Paradimethylaminobenzaldehydreaktion (Erwärmen bei der Reaktion), o. a. m.

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STATUS OF GALLIONELLA EHRENBERG AS A GENERIC NAME IN BACTERIOLOGY

Preliminary Statement. File No. 49

Editorial Board

Gaillonella and Gallionella have been recognized as generic names in algology and Gallionella has been used also in bacteriology. The Judicial Commission has been asked to give an OPINION relative to the legitimacy of the use of Gallionella in bacteriology.

Gaillonella Bory de St. Vincent 1823 (1). Bory in his Encyclopedia of Natural History, under the alphabetic heading Confervées, described several genera. Number VIII has the following description:

> "GAILLONELLE, Gaillonella, N. Gemmes intérieures sphériques, transversalement coupées dans leur diamètre, de manière à présenter l' idée de petites boîtes à savonette."

It will be noted that no species were named. The likening to soap boxes would indicate that the author was describing a genus of diatoms. Later Bory 1825 (2), under the alphabetic heading Gaillonelle, gave the following description:

> "Gaillonella Bot. Crypt. Confervées. Genre que nous avons dédié au laborieux Gaillon, naturaliste de Dieppe, auquel on doit d'excellentes observations microscopiques sur les Hydrophytes, les Infusoires et la coloration des Huîtres. Il présente des caractères fort remarquables, et qui tendraient a le separer de la famille naturelle où nous le comprenons provisoirement pour le rapprocher des Arthrodiées, de la section des Fragillaires, dont il acquiert par la dessiccation la consistance micacée, scarieuse et brillante. Le plus fort grossissement seul peut faire apprécier son élégante organisation qui consiste en des filaments simples, cylindriques, articulés par sections renfer-

mant chacune deux corpuscules capsulaires, sphéroides, transparens même quand ils sont remplis d'une matière colorante, ferrugineuse, et partagés en deux parties égales par un dissépiment qui apparaît au profil comme une ligne que formerait, en la coupant en deux parties égales, le diamètre de chaque globule. Nous y avons vainement cherché des traces d'animalité; nour n'hésitons pas a regarder les Gaillonelles comme de simples Végétaux. Le type du genre est le Conferva moniliformis de Müller (V. Planches de ce Dictionaire), a laquelle on ne voit pas pourquoi Lyngbye (Tent., p. 274), d'après Dillwyn, à donné le nom de lineata. Cette espèce forme sur les Plantes marines et les Ulves des rivages un duvet grisâtre peu remarquable. Le Conferva nummuloides de Dillwyn appartient au genre Gaillonelle.

The species included and the illustrations definitely place this genus among the diatoms.

Ehrenberg 1833(3) ascribed the genus to Bory 1923, and cited Melosira Agardh 1824 as a synonym. The latter is a widely and currently used name for a genus of diatoms. He assigned the organism to the Bacillaria, a family of diatoms. In his diagnosis of the genus, he states:-

"Lorica subglobosa aut oblonga bivalvis divisione "

certainly characteristic of diatoms. He includes Bory's species Gaillonella lineata.

Ehrenberg 1836(4) described at some length a species which he named Gaillonella ferruginea. He regarded it as probably the same as the Hygrocrocis ochracea of the botanists. He termed it the iron-ocher animalcule, and found its fossil "shells" in abundance. He included several species of diatoms in the same genus. His illustration would seem to indicate that he regarded the new species as a very minute diatom growing in chains.

In 1838(5) Ehrenberg (p. 166) changed the spelling of the

generic name to Gallionella and included the species Gallionella ferruginea Ehrenberg with the following citations under synonymy:-

Conferva ochracea Roth ? 1797.
Lyngbya ochracea Leiblein 1827.
Gaillonella ferruginea Ehrenberg 1835.
Gallionella ferruginea Ehrenberg.

Apparently the change of spelling from Gaillonella to Gallionella was intentional, perhaps for the sake of euphony, or because the former name was poorly latinized. He gives the following diagnosis of the genus (p. 166):

"Gallionella Gaillonelle. Character. Animal e familia Bacillariorum librum, lorica simplici, bivalvi (silicea), cylindriacum, globosum aut disciforme, spontanea imperfecta divisione cateniforme."

He stated that the genus contains 7 living and 3 fossil species. He ascribed the name to Bory de St. Vincent 1823, and noted that the generic name honored Gaillon. He also stated that Agardh in 1824 proposed the name Meloseira for a genus (of diatoms).

The organism named Gallionella ferruginea was later found to belong with the iron bacteria and not with the algae. The names Gaillonella and Gallionella appear repeatedly in the literature of algology, either for genera or for subgenera, and the name Gallionella has also continued to be used frequently as the name of a genus to include certain iron bacteria.

Griffith 1853 (6) pointed out that Ehrenberg's Gallionella ferruginea is not a diatom, and that it cannot be placed in the genus Gloeotila as was done by Kuetzing. From the fact that the organism usually consisted of two intertwined filaments he proposed the new generic name Didymohelix.

Kuetzing 1865 (7) included Gallionella as a subgenus of Melosira, and after describing the accepted species definitely excluded Gallionella ferruginea in the following manner:-

"Ganz ausgeschossen muss werden Gallionella ferruginea Ehr. welche gar keine Diatomee, sondern eine Conferva ist."

He notes that this organism does not contain silicon. In his "Species Algarum" he lists the organism under "Species excludendae."

De Toni 1891 (8) recognized Gallionella Bory as a genus of diatoms.

Ellis 1907 (9) and Molisch 1910 (10) both regarded Gallionella as a bacterial genus.

On the basis of the preceding discussion it would seem that the name Gallionella is a revised spelling of Gaillonella, the spelling used by the author of the name. It is an orthographic variant. It was proposed as a name for a genus of diatoms, and its use as a name for a genus of bacteria would seem to be illegitimate under Rule 24 of the International Bacteriological Code of Nomenclature which states:

"a name must be rejected if it is illegitimate---"

and later,

"a name of a taxonomic group is illegitimate---
(4) if it is a later homonym of a taxonomic group (taxon) of bacteria, of plants, or of protozoa; that is if it duplicates a name previously and validly published for a group of the same rank based on a different type---"

The first generic name proposed definitely for the bacterial genus was Didymohelix by Griffith 1853 with the type species Didymohelix ferruginea (Ehrenberg) Griffith. However, opinions expressed by certain algologists and certain actions taken by them under the botanical rules require examination before a decision is reached.

Hustedt (11) in his Die Kieselalgen (pp. 221-223) discusses the legitimacy and expediency of Gaillonella and Gallionella as generic names of diatoms. For the name of the genus in question he used Melosira Agardh 1824. He recognizes (personal communication) that the original spelling used by Agardh was Meloseira which fails to

follow the usual transcription from Greek to Latin, i.e. the Greek ei becomes i in Latin. He gives Lysigonium Link as an earlier synonym, with Lysigonium moniliforme (Mueller) Link 1820 as the type. He believes there is serious doubt as to whether Link actually saw this Melosira, leading to the discarding of Lysigonium as inadequately described. The generic name Gaillonella was given by Bory in 1823 but without any identification of species. The name Meloseira given by Agardh in 1824 with identified species antedates the 1825 description of species of Gaillonella by Bory. Hustedt states (personal communication)

> "in a list proposed by the subcommittee 8 (Diatomaceae) at the last Congress in Sweden, the name Melosira is recommended as a nomen conservandum, whereas Meloseira and Gaillonella should be regarded as nomina rejicienda."

This statement is confirmed by the recent action of the Committee noted above. The Advisory Board of Nomenclature (12) through its General Committee of Botanical Nomenclature consisting of the Secretaries of Special Committees has called for a vote on the several recommendations of the Special Committee on Bacillariophyta relative to conservation or rejection of various generic names of diatoms. The following action (representing a recommendation to the General Committee on Nomenclature) was taken:-

Recommended as a nomen conservandum
Melosira Kütz., 1833.
Type: M. nummuloides (Ag.) Kütz.

Recommended as nomina rejicienda
Lysigonium Link, 1820.
Type: L. moniliforme (O. F. Müll.) Chase
Gaillonella Bory, 1823.
Type: G. moniliformis (O. F. Müll.) Ehrenb.
Meloseira C. Ag., 1827.
Type: M. nummuloides C. Ag.

Noteworthy is the rejection of Gaillonella as a generic name for diatoms. On the assumption that the recommendations outlined above is approved, the relationships of such decision to possible use in bacteriology requires examination. The following queries should be considered.

1. What is the nomenclatural status of a generic name

placed in a list of nomina rejicienda.

In the case under consideration Melosira Kützing (Type M. nummuloides) is conserved as a generic name, and the alternatives Gaillonella Bory (type G. moniliformis) and Lysigonium Link (type L. moniliforme) are rejected. This apparently means that any genus containing the type species M. nummuloides must be named Melosira rather than Lysigonium or Gaillonella. But does it mean that if the genus Melosira is divided later, neither Lysigonium or Gaillonella may be used as a generic name, even though the type species is L. moniliforme or G. moniliformis? The pertinent portion of the rule in the International Bacteriological Code of Nomenclature Rule 24 reads:-

> A name must be rejected if it is illegitimate, i.e., if it is contrary to a rule.---

A name of a taxonomic group is illegitimate in the following cases:------

> (4). If it is a later homonym of a genus of bacteria, of a genus of plants, or of a genus of protozoa. That is if it duplicates a name previously and validly published for a group (taxon) of the same rank based on a different type. Even if the earlier homonym is illegitimate, or is generally treated as a synonym on taxonomic grounds, the later homonym must be rejected.

2. Is in fact the generic name Gallionella as applied to a genus of bacteria a homonym of Gaillonella Bory?

It seems clear that Bory proposed Gaillonella as a generic name for certain diatoms. The name was derived from Gaillon, a patronymic. Ehrenberg accepted this generic name for a genus of diatoms, but later changed the spelling to Gallionella (perhaps for euphony). The genus was not redefined. The name Gallionella seems definitely to have been applied to a genus of diatoms, with Gallionella an orthographic variant of Gaillonella. Ehrenberg named an organism now included with the bacteria Gallionella ferruginea. He definitely regarded it as a diatom. As a result of the exclusion of Gallionella ferruginea

from the diatoms, Griffith proposed the generic name Didymohelix with the type species Didymohelix ferruginea (Ehrenberg) Griffith. Attention should be called to the possible bearing of the following note to Rule 24 (4) quoted above:-

> Note. Mere orthographic variants of the same name are treated as homonyms when they are based on different types.

When used for the same genus of diatoms, Gaillonella and Gallionella may be regarded as orthographic variants of the same generic name.

DRAFT PROPOSALS.

1. Gallionella Ehrenberg is (is not) to be regarded as an orthographic variant of Gaillonella Bory.
2. Gallionella Ehrenberg has (has not) as its type species Gallionella moniliformis and is (is not) available as a generic name in bacteriology with the type species Gallionella ferruginea Ehrenberg.
3. Didymohelix Griffith is (is not) the first legitimate name for the genus of bacteria including the Gallionella ferruginea Ehrenberg. Didymohelix Griffith should (should not) be designated as a nomen genericum conservandum with the type species Didymohelix ferruginea (Ehrenberg) Griffith.

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THE CORRECT SPECIES NAME OF THE STREPTOCOCCUS OF BOVINE MASTITIS

File No. 37.

Prof. Dr. Herbert Haupt, University of Giessen.

Three species names are primarily to be considered:- Streptococcus nocardi Trevisan 1889, S. agalactiae Lehmann and Neumann 1896, S. mastitidis Migula 1900.

I have never had Trevisan's (1)* publication of 1889 in my hands, I am therefore able to add nothing to the statement given in Bergey's Manual 6th ed. p. 319.

The question of the epithets agalactiae and mastitidis I have extensively investigated and with M. Klimmer (2) published the results in 1930.

Alfred Guillebeau (3) in 1890 published two names, Streptococcus mastitis sporadicae n. sp. and Streptococcus mastitis contagiosae (Nocard and Mollereau), both having the same morphology and biological behavior, but differing in the percentage of cows infected by the two species. Guillebeau's strains of this species of Streptococcus were isolated by milking directly from the diseased udder into a tube of bouillon and were apparently impure (broth culture turbid). The diagnoses of S. mastitis sporadicae and of S. mastitis contagiosae were different from the diagnosis given by Nocard and Mollereau (4) for the Streptococcus of "une mammite contagieuse des vaches laitières" in 1884. In my opinion the

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*Since receiving Dr. Haupt's note, Trevisan's 1889 paper has been republished by photo offset in the January 1952 issue of this BULLETIN. Trevisan's description (p. 30) follows:

9. Str. Nocardi Trev. (Microbe de la mammite contagieuse des vaches laitières Nocard et Mollereau, 1887).

names given by Guillebeau are illegitimate (nomina confusa) because their diagnosis is based on a mixture of more than one species and differs from the description given by Nocard and Mollereau, authors cited in connection with one of the two names.

Eisenberg (5) in 1891 mentioned the Streptococcus "der infektiösen Induration des Euters Nocards und Mollereau" and related it to an inaccurate and erroneous translation of the diagnosis given by these authors. Migula (6) in 1900 and Matzuschita (7) in 1902 followed this erroneous translation of Eisenberg and gave the specific epithet mastitidis to the Streptococcus der "mammite contagieuse des vaches."

Eisenberg describes the culture in milk as follows:

> "In 24 Stunden bei Zimmertemperatur entsteht im obersten Drittel eine schmutzig weisse, gelbe, homogene Masse, darunter eine klare opalescierende, gelblichweisse bis leicht rötliche Flüssigkeit und saure Reaktion durch Bildung von Milchsäure."

Migula accepted Eisenberg's faulty description of the milk-culture and Guillebeau's statement that the broth culture is turbid. Therefore Migula's name is invalid.

In the meantime Kitt (8) in 1893 had given the name Streptococcus agalactiae contagiosae to this species, accompanying this name with a faultless diagnosis. Lehmann und Neumann (9) in 1896 used the name Streptococcus agalactiae Adametz. In the publications of Adametz (19) I have found the name Streptococcus agalactiae contagiosae only once. He mentions Kitt's Bakterienkunde and describes a coccus, which in his opinion is similar to the Streptococcus agalactiae but which later has been described by Hucker (11) as identical with Micrococcus epidermidis Kligler 1913. The abbreviated form of Kitt's name ascribed by Lehmann and Neumann to Adametz I have not found in Adametz' publications. The result of my extensive study was that the legitimate epithet in my opinion was Streptococcus agalactiae (Kitt 1893) n.sp. (syn. Streptococcus der mammite con-

tagieuse von Nocard et Mollereau (1887): Streptococcus mastitidis (Guillebeau 1890) Bergey et al 1925). The names used by Guillebeau, by Migula and by Lehmann and Neumann are illegitimate because they are based on impure cultures or on faulty translations of Nocard's description or on the description of quite another coccus.

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BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

THE CORRECT SPELLING OF A SPECIFIC EPITHET IN THE GENUS SHIGELLA. EQUIRULIS VERSUS EQUULI.

File No. 41.

Prof. Dr. Herbert Haupt, University of Giessen.

The species of the genus Shigella (as Shigella equirulis (de Blieck and van Heelsbergen) Edwards) under No. 8 in the sixth edition of Bergey's Manual was originally named Bacillus equuli* by van Straaten (1). The literature has been previously reviewed by me (2).

The epitheton speciale "equuli" for this bacterium is accompanied by a description sufficient for the recognition of the organism. There can be no doubt that the name was given in accordance with the codex.

The epitheton speciale "equirulis" was cited by Miessner and Wetzel (3) who ascribed the authorship of the name to van Straaten 1917, apparently without having seen the original paper, and in reliance upon a paper by de Blieck and van Heelsbergen (4). These latter authors erroneously, probably as a result of a misprint, used the spelling equirulis.

Edwards (5)**, relying upon the publication of Miessner and Wetzel used the epitheton equirulis, from which publications it was taken over by Bergey's Manual in the fourth edition. The first scientific name given to the organism, Bacillus nephritidis equi Meyer (7), was illegiti-

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*From the Latin equulus, a colt, a foal.

**Editorial Note. Dimock, Edwards and Bruner (6) in a footnote state "The valid name of this species appears to be Shigella equuli (van Straaten 1918). Apparently the authors were the first to use this binomial in naming this species in the genus Shigella."

mate, as was also the second name Bacterium viscosum equi, inasmuch as the specific epithet in each case consists of two words which may not properly be united or joined by hyphens as required by Rule 6 of the codex. Although not a matter specifically covered by the codex, I may be allowed to state that several authorities in the Latin language have been unable to find any Latin stem to which the name equirulis might be referred.

I hold the epitheton speciale "equuli" to be valid for species No. 8 of the genus Shigella in the sixth edition of Bergey's Manual.

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CHLOROBACTERIUM Guillebeau 1890 vs. CHLOROBACTERIUM Lauterborn 1915. THE STATUS OF CHLOROBACTERIACEAE Lauterborn 1913.

Supplementary Preliminary Statement

File No. 8.

Editorial Board

The following statement has been prepared by the Editorial Board for consideration by the Judicial Commission and for use in preparation of a formal OPINION. Comments and criticisms are invited from anyone interested.

The Editorial Board published (1) in the January 1951 issue of this BULLETIN a list of six proposals relative to the status of the bacterial generic name Chlorobacterium and of the family name Chlorobacteriaceae. These proposals were:-

1. Chlorobacterium Lauterborn 1915 should be conserved and placed in the list of nomina generica conservanda.
2. Chlorobacterium Guillebeau 1913 should be rejected and placed in the list of nomina generica rejicienda.
3. Chlorobacterium Lauterborn 1915 should be designated as the type genus of the family Chlorobacteriaceae Lauterborn 1913 em. 1915.
4. Chlorobacterium symbioticum Lauterborn 1915 should be recognized as the type species of the genus.
5. Chlorobacterium lactis Guillebeau 1890 should be rejected and placed in the list of nomina specifica rejicienda.
6. Chlorobacteriaceae Lauterborn 1913 em. 1915 should be conserved and placed in the list of nomina familiarum conservanda.

The request was initially made that such action be taken by the Judicial Commission as might be required to reject the

generic name Chlorobacterium given by Guillebeau to include a new species Chlorobacterium lactis associated with certain cases of bovine mastitis. Several reasons for this proposed action were adduced.

1. The generic name Chlorobacterium as proposed by Guillebeau has not come into common use in bacteriology.
2. The name Chlorobacterium is apparently an earlier synonym of Pseudomonas, and its species C. lactis is probably an earlier synonym of Pseudomonas aeruginosa, the type species of the genus. Recognition of the priority of Chlorobacterium would require a change in name of many species of bacteria, the majority of economic significance and well established in the literature.
3. Recognition of Chlorobacterium Guillebeau would also make illegitimate Chlorobacterium Lauterborn, the latter being a later homonym. The generic name Chlorobacterium of Lauterborn has been used in various monographs which include the green bacteria.

The members of the Judicial Commission agreed that there seemed to be ample reason for the rejection of the generic name Chlorobacterium Guillebeau and of the specific name Chlorobacterium lactis Guillebeau but some members suggested that the conservation of the generic name Chlorobacterium Lauterborn and the family name Chlorobacteriaceae Lauterborn would be unnecessary and probably unwise if the earlier homonym were rejected.

It was pointed out by one Commissioner that the genus Chlorobacterium Lauterborn has been quite inadequately studied, and that there are other much better understood genera of green bacteria in the family Chlorobacteriaceae. Final decision as to the disposition of the genus Chlorobacterium Lauterborn might well therefore wait upon future studies. In the meantime there would be no bar to the continued use of this generic name nor to the use of the family name Chlorobacteriaceae.

The point of view of another Commissioner may best be ex-

pressed by several direct quotations:-

"As far as I can judge most scientists who are conversant with the group of photosynthetic green bacteria will agree with the following statements:

1. Nadson (1912) was the first investigator who clearly described a bacterium having the properties of the group. Chlorobium is, therefore, a validly published genus with Chlorobium limicola as its type species.

2. Lauterborn's description of his Chlorobacterium symbioticum is too exclusively based on ecological features to enable its recognition. Chlorobacterium symbioticum Lauterborn is therefore, a nomen dubium and should be included under nomina rejicienda, and this implies that the same holds for the genus Chlorobacterium Lauterborn.

3. The name Chlorobacteriaceae is a most descriptive and appealing family name for the group as a whole.....

Summarizing, it is my provisional opinion that we might indeed conserve Chlorobacteriaceae Lauterborn 1913 em. 1915 as the name of the family and include the genus Chlorobium Nadson. As type genus we might choose Chlorochromatium with the well recognizable Chlorochromatium aggregatum as its type species."

In view of the suggestions made by the Commissioners and others it has seemed wise to rephrase the proposals, to publish them herewith, to invite criticism and discussion by those interested, and to submit a new draft Opinion to the Commissioners of the Judicial Commission. Approval of the rejection of Chlorobacterium Guillebeau 1890 would apparently free Chlorobacterium Lauterborn for such use as may be expedient.

DRAFT PROPOSAL

1. Chlorobacterium Guillebeau 1890 is (is not) to be rejected as a generic name in bacteriology and placed in the list of nomina generica rejicienda.

2. Chlorobacterium lactis Guillebeau 1890 is (is not) to be rejected as a species name in bacteriology and placed in the list of nomina specifica rejicienda.

REFERENCES

(1). Editorial Board. Chlorobacterium Guillebeau 1890 vs. Chlorobacterium Lauterborn 1915 and The Status of Chlorobacteriaceae Lauterborn. 1913. Internat. Bull. Bact. Nomen. and Taxonomy. 1 (1):43-44. 1951.

USE OF TAXON, TAXONOMIC GROUP AND GROUP IN BACTERIOLOGY

An Amendment to The International Bacteriological Code of Nomenclature.

The Judicial Commission

The International Microbiological Congress of 1950 approved in principle an amendment to the International Bacteriological Code of Nomenclature which would permit the use in the Code of the word taxon (plural taxa) for the term "taxonomic group" and the word "group" (where used with the meaning of "taxonomic group"). The exact wording of the amendment was left to the Editorial Board of the International Committee on Bacteriological Nomenclature.

The Congress directive was to the effect that the word taxon (or taxa) was to be inserted in parentheses following each use of the phrase taxonomic group or the word group. When the resolution was first drawn and discussed at the Congress it was not recognized that this would require such insertion more than fifty times, and would lead to undesirable redundancy.

The board of Editors phrased a draft proposal which was submitted to the members of the Judicial Commission. The proposal was published in this BULLETIN in the January 1951 issue (1), and discussion invited. No objections have been received. The Judicial Commission has approved the wording in the form submitted by casting twelve affirmative ballots, two ballots were not returned.

The following amendment has therefore been duly adopted and approved for inclusion as a Note following Principle 3, Chapter 2.

Amendment Authorizing the Use of the Term Taxon (Taxa).

Following Principle 3 of Chapter 2 of the International Bacter-

iological Code of Nomenclature insert the following:-

Note 1. The use of the word taxon (plural taxa) is appropriate for the term taxonomic group or the word group wherever used in the sense of taxonomic group in the International Bacteriological Code of Nomenclature. The word group has as its preferred use in bacteriology that indicated in Recommendation 8a (3).

REFERENCE

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TRANSLITERATION OF GREEK TO LATIN

Proposals for the Emendation of the International Bacteriological Code of Nomenclature

Editorial Board

A PRELIMINARY STATEMENT concerning File No. 6 relative to the spelling of the specific epithet in the species name Micrococcus lysodeikticus Fleming 1922 was published in the January 1951 issue of this BULLETIN. It was suggested that there seemed to be no warrant in the International Bacteriological Code of Nomenclature for a change in spelling in cases where there has been the use of a non-classical transliteration to a spelling in the classical tradition.

The members of the Judicial Commission were asked whether in their judgement stability and uniformity in bacteriological nomenclature would be advanced by the approval of one or more of four proposals submitted to them. These proposals, together with the results of the balloting of the Commissioners, are submitted herewith, as also new proposals growing out of the decisions of the Commissioners.

Proposal No. 1.

An OPINION should be formulated by the Judicial Commission to the effect that a spelling of the name of a taxon in which the author ignored the classic transliteration of Greek to Latin should not be changed unless there is clear evidence of a typographical error or of an unintentional orthographic error.

Result of Vote. Two Commissioners approved, ten Commissioners disapproved, and two did not return ballots.

The result of the ballot indicates that the Judicial Commission does not sanction the preparation of an OPINION

which would formally approve the spelling of words in which the authors disregarded the classic tradition in the transliteration of Greek to Latin.

Proposal No. 2.

A suitable Rule or Recommendation should be drafted for the consideration of the Judicial Commission, which draft should authorize the correction of the spelling of names derived from Greek and not transliterated into Latin in accordance with classic precedents, such draft to be considered for inclusion in the International Bacteriological Code of Nomenclature.

Result of Vote. Eleven Commissioners approved, one disapproved and two did not return the ballots.

The Editorial Board acting under the directive of the Commission has prepared a wording of a draft Rule for the consideration of the Commission, such draft constituting a proposal for the emendation of the Code.

Draft Proposal for Emendation of Note 4 under Rule 27. The present wording of Rule 27 is first given.

> Rule 27. The original spelling of a name or epithet must be retained, except in the case of a typographical error, or of a clearly unintentional orthographic error. When the difference between two generic names lies in the termination, these names must be regarded as distinct, even though differing by one letter only. This does not apply to mere orthographic variants of the same name.
>
> Note 4. Proposed emendation. The name of a taxon derived from the Greek but not transliterated by its author in accordance with approved standards may be corrected. The name of the taxon as originally published becomes an orthographic variant of the corrected name, but without prejudice to the validity of publication

by the first author. Specific and other epithets and names of Greek origin differing merely by having Greek and Latin terminations respectively are orthographic variants. Epithets having the same meaning and differing only slightly in form are considered as orthographic variants. The genitive and adjectival forms of a personal name are, however, treated as different epithets.

Proposal No. 3.

A clear statement of the rules imposed by the classic tradition for the transliteration of Greek to Latin should be prepared for consideration by the Judicial Commission as a desirable Appendix to the International Bacteriological Code of Nomenclature.

Result of Vote. Twelve Commissioners approved, none disapproved and two did not return the ballot.

The Editorial Board acting under the directive of the Commission as noted above prepared a proposal for emendation of the Code. This consists of a table published in this BULLETIN which gives the preferred and the alternative transliterations of the Greek letters to the Latin. This table was the result of careful study of precedents in the Latin language, of previous tabulations by various workers, and of custom in botany and in zoology. The previous tabulations studied proved helpful, but none was found to be adequate.

Draft Proposal. The tabulation of preferred transliterations from Greek to Latin, as published in the INTERNATIONAL BULLETIN OF BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY 1 (3):98-101, 1951, should be recommended by the Judicial Commission to the International Committee on Bacteriological Nomenclature for approval to be included as an Appendix to the International Bacteriological Code of Nomenclature, with the following provisos:

1. The exact wording of the Appendix is to be fixed by the Judicial Commission.
2. The Judicial Commission shall endeavor to secure active cooperation of the International Association

for Plant Taxonomy and of the Zoological Commission in the development of integrated statements for the three nomenclatural codes for botany, zoology and bacteriology.

3. The Joint Permanent Secretaries of the International Committee on Bacteriological Nomenclature will determine by vote the wishes of the International Committee.

Proposal No. 4.

A draft recommendation should be prepared urging all authors of new names to follow the classic tradition in the transliteration of names from Greek into Latin for use in the naming of taxonomic groups, such draft Recommendation to be considered by the Judicial Commission and, when acceptable, to be submitted to the International Committee on Bacteriological Nomenclature for consideration as an amendment to the International Bacteriological Code of Nomenclature.

Result of Vote. Twelve Commissioners approved, none disapproved and two did not return the ballots.

The Editorial Board acting under the above directive has prepared the following Draft Recommendation. The present Recommendation 27a reads as follows:-

> Recommendation 27a. When a new name is derived from a Greek word containing the spiritus asper (rough breathing), this should be transcribed as the letter h.

It is recommended that this Recommendation be replaced by a new Recommendation recognizing more fully the requirements for the transliteration of all letters.

> Draft Proposal for New Recommendation 27a. Authors who form the names of new taxa from Greek words are urged to transliterate the Greek stems into Latin in accordance with standard practice for bacteriology as given

in Appendix __ to these Rules. Names of taxa in which standard usage in transliteration has not been followed may have the spelling corrected by a later author, but without prejudice to the validity of publication by the first author.

The columns of this BULLETIN are open for all pertinent discussions of the proposals listed above.

OPINION NO. 5

CONSERVATION OF THE GENERIC NAME PSEUDOMONAS MIGULA 1894 AND DESIGNATION OF PSEUDOMONAS AERUGINOSA (SCHROETER) MIGULA 1900 AS TYPE SPECIES

Judicial Commission

The Editorial Board (1) published in the January 1951 issue of this BULLETIN a Preliminary Statement (File No. 7.) relative to the status of the generic name Pseudomonas Migula 1894, and to the designation of the type species. Three proposals were submitted to the members of the Judicial Commission.

The first proposal was approved by twelve Commissioners, it was disapproved by none, and two Commissioners did not vote.

The second proposal was approved by twelve Commissioners, it was disapproved by none, two Commissioners did not vote.

The third proposal was approved by eleven Commissioners, two Commissioners did not vote, and one Commissioner stated that in his opinion the "selection of type species" is made "in accord with generally accepted rules thus making formal action unnecessary".

The OPINION as approved by the Judicial Commission is as follows:-

OPINION NO. 5.

1. The generic name Pseudomonas Migula 1894 is to be conserved and placed in the list of nomina generica conservanda.
2. The generic name Pseudomonas Migula 1894 (2) is to be associated with the species designated and described by Migula 1895 (3).
3. The type species of the genus Pseudomonas Migula 1894 is Pseudomonas aeruginosa (Schroeter) Migula 1900 (4) (Bacterium aeruginosum Schroeter 1872 (5), Bacillus pyocy-

aneus Gessard 1882 (6), Pseudomonas pyocyanea Migula 1895 (3).

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(3). Migula, W. Schizomycetes (Bacteria, Bacterien) in Engler, A. and K. Prantl. Die Natürlichen Pflanzenfamilien. Teil 1, Abt. 1a. 29. 1895.

(4). Migula, W. System der Bakterien. 2:884. 1900.

(5). Schroeter, J. Ueber einige durch Bacterien gebildete Pigments, in Cohn, F., Beiträge z. Biologie d. Pflanzen. 1(Heft 2):126. 1872.

(6). Gessard, C. Sur les Colorations bleue et verte des linges à pausements. C.R. Acad. Sci. Paris. 94:536. 1882.

ACTION ON REQUESTS FOR EXCEPTIONS TO RULE 3 RELATIVE TO FORMATION OF FAMILY NAMES FROM NAMES OF INCLUDED GENERA.

Editorial Board

The fifth International Congress of Microbiology in 1952 made provision for revision of Rules 1 - 4 of the International Bacteriological Code of Nomenclature relative to the formation of names of taxonomic groups of higher rank than genus. The essential content of the revised rules was agreed upon, but there was insufficient time available for preparation of a suitable draft and final approval.

Agreement was reached that the name of a family shall be derived from the name of a contained genus, preferably the type genus, and that the method of formation of names of higher taxa should be definitely fixed.

It was also agreed that certain old or widely used family names might be recognized as exceptions to the rule requiring that each family name be derived from the name of a contained genus.

The Editorial Board prepared a Draft Revision of Rules 1 to 4 which was published (1) in the April 1951 issue of this BULLETIN. The proposed Rule 3 with its accompanying Recommendation 3a and its Note follows:-

> (Draft Revision) Rule 3. Names of all taxonomic groups (taxa) between suborder and genus are formed by the addition of the appropriate suffix to the stem of the name of a contained genus.
>
> Recommendation 3a. Names of all taxonomic groups (taxa) between suborder and genus are derived preferably from the name of the type genus.
>
> Note. To avoid disadvantageous changes in certain old or widely used family names which do not conform to Rule 3, exceptions may be made when approved by the International Committee on Bacteriological Nomencla-

ture. The following exceptions have been approved:-

Under the directive of the International Congress, the Draft Proposal when approved by the Judicial Commission is to be submitted by the Joint Permanent Secretaries to the International Committee on Bacteriological Nomenclature whose decision is final.

The proponent of the Note making provision for exceptions requested that sufficient time elapse after publication of the Draft Proposal before submission to the International Committee to enable the Judicial Commission to agree upon a list of family names to be recommended.

The proponent submitted to the Editorial Board a list of seven family names for consideration as exceptions but without any supporting statement. The Editorial Board thereupon prepared and published a Request for Exceptions (2) in the April 1951 issue of this BULLETIN. The Editorial Board later prepared and published (3) a review of the history and present status of the several family names proposed for inclusion as exceptions. The Editorial Board then submitted to the members of the Judicial Commission the following:-

> Proposal for Exceptions. It is proposed that the following family names of bacteria be recognized as exceptions to Rule 3 on the basis that they are old names or are widely used. Coccaceae, Lactobacteriaceae, Enterobacteriaceae, Parvobacteriaceae, Chlamydobacteriaceae, Thiorhodaceae, and Athiorhodaceae.

The Proposal for Exceptions was submitted to the Judicial Commission for consideration and action.

Result of Vote. Four Commissioners approved the list, one Commissioner approved six names, rejecting Enterobacteriaceae, one Commissioner tentatively approved two names but questioned the desirability of making even these exceptions. Two Commissioners disapproved of all exceptions. None of the remaining Commissioners approved any definite exception, although comments were submitted in

some cases.

No additional proposals for recognition of exceptions has been received by the Judicial Commission.

The support for the proposed exceptions, as shown by the vote of Commissioners, self-evidently would not warrant the inclusion at present of any family names in the Note to Rule 3. This does not prejudice the later submission or reconsideration of proposals for exceptions.

An opinion expressed by several of the Commissioners in explanation of their failure to vote approval may be paraphrased. Those active workers in the field of bacteriology who make much use of names of taxonomic groups are most interested in the names of genera and particularly of species and in the stabilization of these names. The names of the higher categories are used as labels for groups of genera in an attempt to show relationships. These names are important, but even more important are the criteria that should be used in differentiation among these categories. The whole problem of bases for differentiation and classification is under vigorous study. It would be unfortunate at the moment to make the name of any higher taxon an exception to the rules, or even to characterize it as an approved alternative to a name legitimate under the rules. We should apply the old Linnaean dictum in Critica Botanica: "The Classification being made, let Nomenclature, the other of the two foundations of Botany, forthwith bestow names."

The Editorial Board believes that there should be no further delay to permit discussion of proposals for family name exceptions, and that the original proposal relative to emendation of Rules 1, 2, 3, 4 of the International Bacteriological Code of Nomenclature should be acted upon by the Judicial Commission and the International Committee on Bacteriological Nomenclature.

REFERENCES

(1). Board of Editors. The Formation of the Names of Taxonomic Groups (Taxa) of higher Rank than Genus. Intern.

Bull. Bact. Nomencl. and Taxonomy 1(2):58(10)-61(13). 1951.

(2). Board of Editors. Derivation of Family Names in Bacteriology from Names of Included Genera. Request for Exceptions. Intern. Bull. Bact. Nomencl. and Taxonomy. 1(2):62(14)-63(15). 1951.

(3). Board of Editors. Exceptions to the Rule Requiring that each Family Name in Bacteriology be Derived from the Name of a Contained Genus. Intern. Bull. Bact. Nomencl. and Taxonomy. 1 (4):167-177. 1951.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

NEWS AND NOTES

Swiss Members of the International Committee. The following individuals have been nominated by the Schweizerische Mikrobiologische Gesellschaft for membership in the International Committee on Bacteriological Nomenclature. They will serve as acting members of the Committee until the nominations have been accepted by the next International Congress of Microbiologists.

Prof. Dr. P. Kästli, Eidg. Milchwirtschaftl. Bakt. Anstalt. Liebefeld-Bern.

Prof. Dr. med. H. Mooser, Hygiene - Institut der Universität, Zürich.

Prof. Dr. Grasset, Institut d'Hygiène de l'Université, Genève.

Dr. es sc. Ch. Terrier, Chemin de Rovéréaz, Lausanne.

The fifth member of the delegation from Switzerland is Prof. Dr. W. Frei, Veterinär-Pathologisches Institut der Universität, Zürich.

Death of Prof. Dr. R. Doerr. We note with regret the death of Prof. Dr. R. Doerr of the Hygienische Anstalt der Universität Basel, Switzerland. Prof. Doerr was a member of the International Committee on Bacteriological Nomenclature.

New Zealand Members appointed to Committee. The following have been designated as New Zealand Representatives on the International Committee on Bacteriological Nomenclature:-

Dr. L. Kirschner, Medical School, University of Otaga, Dunedin C. 1., New Zealand.

Mr. M. B. Duddle, B. V. Sc. Wallaceville Animal Research Station, Private Bag, Wellington, New Zealand.

Dr. H. R. Whitehead, Dairy Research Institute, Massey College, Palmerston North, New Zealand.

Member from Portugal. Professor J. Cândido de Oliveira, Instituto Bacteriológico, Rua do Instituto Bacteriológico Câmara Pestana, Lisbon, Portugal, has been designated to represent Portugal on the International Committee on Bacteriological Nomenclature.

Addendum to Indolbildung bei Bakterien. Dr. Frieber asks that two references be added to his article, this BULLETIN p. 95. The request came too late for inclusion in the appropriate place. The references to bacterial indol formation follow:-

(2). Frieber, W.: Beiträge zur Frage der Indolbildung und der Indolreaktionen sowie zur Kenntnis des Verhaltens indolnegativer Bakterien. Zbl. Bakt. I, Orig. 87. 254-277. 1921.

(3). Neisser, M. und W. Freiber. Indol- und Phenolbildung durch Bakterien. Handbuch der mikrobiologischen Technik. Herausgegeben von R. Kraus und P. Uhlenhuth. Band II. 1245-1265. Verlag Urban und Schwarzenberg, Berlin und Wien.

The Subcommittee on Plant Viruses authorized by the International Association of Microbiologists at the Rio de Janeiro Microbiological Congress in 1950 has the following membership:

Chairman:-

Dr. L. M. Black, Brooklyn Botanic Garden, 1000 Washington Avenue Brooklyn 25, New York, New York, U. S. A.

Members:-

Dr. F. C. Bawden, Rothamsted Experimental Station, Harpenden, Herts., England.

Dr. A. Bitancourt, Instituto Biologico, Dept. del Defesa Sanitaria, Caixa Postal 7119, Sao Paulo, Brazil.

Dr. E. Köhler, Institut für Virusforschung, Biologische Bundesanstalt für Land und Forstwirtschaft, Dörnbergstrasse 25/27, Celle, Germany.

Dr. B. A. Kvicala, School of Agriculture and Forestry, Brno, Czechoslovakia.

Dr. H. M. Quanjer, Instituut voor Phytopathologie, Wageningen, Holland.

Dr. T. H. Thung, Instituut voor Phytopathologie, Wageningen, Holland.

Dr. Torsten Wikén, Institut für Bakteriologie u. Gärungsbiologie, Eidgenoss. Techn Hochschule, Universitätstrasse 2, Zürich 6, Switzerland.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

Notice to National Microbiological Societies. Representation on the International Committee on Bacteriological Nomenclature is based upon nominations made by the several national bacteriological societies. The Joint Permmanent Secretaries of this Committee have asked that attention be called to the following provision of the International Bacteriological Code of Nomenclature:-

> "At least one year before each Congress each national society shall inform the Permanent Secretaries of any recommendations relative to change in its representation."

Inasmuch as the next International Congress for Microbiology will meet in Rome in September 1953, the several societies are asked to communicate promptly with one of the Permanent Secretaries.

Special Committee for Fungi. Several Special Committees on Nomenclature were appointed at the Stockholm Botanical Congress of 1950 to consider the problems of nomenclature in the several groups of plants. One of these committees of special interest to microbiologists is the Special Committee for Fungi. According to Taxon (1:10, 1951) the members are as follows:-

> Secretary, Dr. Donald P. Rogers, New York Botanical Garden, Bronx Park, New York, U. S. A.; Dr. G. R. Bisby (Great Britain); Dr. K. B. Boedijn (Indonesia); Dr. R. Ciferri (Italy); Dr. M. A. Donk (Indonesia); Dr. C. W. Emmons (U. S. A.); Dr. J. W. Groves (Canada); Prof. R. Heim (France); Mr. I. Jörstad (Norway); Dr. M. LeGal (France); Dr. J. C. Lindquist (Sweden); Prof. W. J. Latjeharms (South Africa); Prof. G. W. Martin (U. S. A.); Prof. R. Singer (Argentine); Dr. A. Trotter (Italy); Miss E. M. Wakefield (Great Britain); and Dr. S. P. Wiltshire (Great Britain).

The secretary Dr. D. P. Rogers has announced (Taxon 1:97. 1952) the approval of a resolution to govern procedure in consideration of generic names proposed for conservation. All proposals not "accompanied by a detailed statement of the cases for and against - - - conservation" will be rejected. Likewise to be rejected are "every proposal for conservation

of a name that would be retained without conservation against the nomina rejicienda proposita", and "every proposal for conservation of a name that is a later homonym of a name in current use for a genus in another group". For adoption of any proposal for conservation there must be an affirmative vote of 60 percent of the members voting.

Taxon, the Official News Bulletin of the International association for Plant Taxonomy, Edited and Published by the International Bureau for Plant Taxonomy and Nomenclature, 106 Lange Nieuwstraat, Utrecht, Netherlands, contains many articles of interest to those who wish to keep in touch with the newer developments in botanical nomenclature. Members of the International Committee on Bacteriological Nomenclature may wish to become members of the International Association for Plant Taxonomy and thereby become subscribers to Taxon. The Annual Membership fee is $3.00 or 11.4 Dutch florins. The publication appears bimonthly in issues of approximately 16 double column pages. No. 5 of Volume I was issued in May, 1952.

The International Code of Botanical Nomenclature. 'The International Association for Plant Taxonomy has announced the publication of the revised International Code for June 1952. This will make available for the first time in many years an authoritative compilation of rules and recommendations in the form finally approved by the Seventh International Botanical Congress and prepared by the Editorial Committee. The volume includes both the English and the French texts. The appearance of this publication is of considerable interest to microbiologists. Its rules and recommendations govern nomenclature of many forms studied by microbiological techniques, particularly the fungi (including yeasts) and the algae. Furthermore the International Bacteriological Code of Nomenclature, under the directives of the International Association of Microbiologists, has endeavored as far as the nature of the bacteria permits to be guided in formation of rules by those of Botany. Before the convening of the Rome International Congress of Microbiology in 1953 it is highly desirable that pertinent and comparable rules and recommendations of the bacteriological and botanical codes be studied carefully. A review of the revised code

and comparison with the bacteriological code will be given in the next (October) issue of this BULLETIN. Members of the International Association for Plant Taxonomy may purchase copies for $1.60 or equivalent in other countries, non-members will pay $3.30. Outside the United States of America copies may be purchased through Messrs Vlaer en Kol, Utrecht, Netherlands, within the U. S. A. from Dr. R. Rollins, Gray Herbarium, Harvard University, Cambridge 38, Massachusetts.

Copyright of Opinions. The International Commission on Zoological Nomenclature copyrights all of its publications, and these bear the statement "All rights reserved". The first issue of SYSTEMATIC ZOOLOGY included a discussion of this procedure. The statement is made: "The secretary of the Commission has stated that this was done to protect the financial interest of the Commission in the excess stock of these publications".

Ballots were distributed by the Nomenclature Committee of the Society of Systematic Zoology to American workers to determine their reactions to this restriction upon quotation and use. Of those replying one approved the strict application of the rule; 9 favored the copyright but believed that the "Trust" should publicly state its permission to use short quotations of portions of opinions, etc., in "connection with discussions of nomenclatural matters in scientific papers" 218 favored permitting professional quotation on application; and 106 favored complete elimination of the copyright.

The results are summarized: "It is clear that 97 percent of the persons replying, or 324 taxonomists out of 334, believe that the copyright should not be used to interfere with reprinting of rules or opinions in reference works or should be eliminated entirely".

The Law of Priority in Zoology. The results of a ballot relative to the strict application of the law of priority as given in the International Zoological Code of Nomenclature is detailed in the first issue of the new Journal SYSTEMATIC ZOOLOGY. Ballots were distributed to American workers

in the field of systematic zoology. Five choices were indicated on each ballot:- 1. Strict application of priority, with no exceptions; 2. Reasonably strict application of priority, with few exceptions that must be virtually universally approved; 3. Moderate application of priority, with exceptions carefully documented and approved; 4. Priority with reasonably free exceptions; 5. Usage as a guiding principle regardless of priority. The votes for the several alternatives were 33 for 1, 119 for 2, 187 for 3, 29 for 4 and 3 for No. 5. The results are summarized in the statement "it appears that 91 per cent of the taxonomists replying favor priority as a general principle, and believe that exceptions to it should be at least limited to those fully and carefully documented and receiving general approval."

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